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ABSTRACT

The Australian national communications satellite AUSSAT, launched in August 1985, is used by government, business, and education. At this stage, the most comprehensive educational project using the satellite involves the state of Queensland, where the government has leased one of the satellite's transponders to provide services throughout the state. The network has a number of trial educational projects being developed, such as linking an elementary class with a teacher, remote-control videos for teacher use, teacher development telecasts, and postsecondary education for remote areas. Different approaches are required to reach remote areas of Western Australia, where some down-time hours are being made available for educational broadcasts. Another scheme is an initiative of a Melbourne-based company to provide a "learning network" for communities. Other initiatives are beginning to train broadcast technicians and expand the capabilities of distance education broadcasting in Australia. The growth of distance education in Australia is representative of the growing importance of distance education throughout the world. As distance education grows, it is also changing its approach from a system-based concept to emphasis on the individual learner's special needs. The growth of distance education has some implications for Asia. Although many parts of Asia will not be served for some time, there is potential for this form of education to have success in Asian countries. It should be seen as one approach to meeting educational needs in these countries, facilitated by communications satellites. (KC)

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ASIAN MASS COMMUNICATION RESEARCH AND INFORMATION CENTRE

SEMINAR ON THE COMMUNICATION REVOLUTION IN ASIA

New Delhi, 21-23 August, 1986

"Satellite Television and (Distance) Education in Australia

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This paper addresses three issues: satellite television and distance education in Australia, distance learning as a general issue, and some possible implications of distance education and technology for Asia.

Australia is a comparative newcomer to the satellite field, because, although we have been accessing international satellites for more than a decade, it was only in August last year that the national communications satellite AUSSAT was launched from the U.S. into a geo-stationary orbit 36,000 kilometres above the north of Australia. In fact there are two satellites each carrying four 30-watt and eleven 12-watt transponders, which can provide television, voice and data communications across Australia in a "national beam" and four regional or spot beams.

For a country as vast as Australia, satellite communication would appear to be a logical and perhaps even a necessary strategy. However, when one takes into account the fact that Australia's population is only fifteen million, and that almost two thirds of the population lives in the south-east corner of the continent, the strength of the case becomes more difficult to gauge. Nevertheless successive governments of different political colour have backed the project, and AUSSAT is now very much part of the Australian communication scene.

The 30-watt transponders are being used by the major broadcast networks. Most of the 12-watt or smaller AUSSAT transponders are being used by large organisations such as Telecom Australia, Department of Aviation etc., for internal purposes, but many are available for smaller users such as companies,

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banks, state governments and education. In order to encourage useage of the satellite, AUSSAT Pty. Ltd., has set its rates very aggressively for smaller users, and education in particular[1].

However at this stage, a limiting factor on the educational potential of the satellite is the fact that current government policy requires the "encoding" of broadcast signals of the bigger 30-watt transponders, so that viewers within the service area of terrestrial commercial broadcasters will not be able to receive direct broadcast signals from the satellite. The policy is designed to protect the revenue of existing commercial licensees, but since this policy at present also applies to the satellite signals of the Australian Broadcasting Corporation, the considerable educational potential of the latter's satellite service is somewhat limited. It needs to be pointed out however, that the A.B.C.'s terrestrial transmission network covers a significant proportion of the Australian population.

Although AUSSAT is less than one year old, several interesting patterns of educational useage have already emerged. At this stage, the most comprehensive project involves the state of Queensland, where the State Government has leased one of the 12-watt transponders servicing the north-east zone. This will allow State education, health, emergency and other services to be provided for mining settlements, aboriginal missions, isolated townships, homesteads and islands throughout the State.

Educationally, the network is impressive, as evidenced by the list of trial projects[2] under development:

1. "School of the Air" - a Year 6 class of 8 children of the Mt. Isa School of the Air, will be linked to their teacher in Mt. Isa through a voice and data satellite network with a regular television program transmitted from Brisbane.
2. Remote control videos - teachers at thirty-five sites throughout the state will be able to access the film and video library of the Department of Education.
3. Teacher development telecasts - teachers in remote areas who currently have access to a regular teacher development loaned video cassette series, will now be able to view the series via direct transmission.
4. Post-secondary education - a number of the state's universities, and post-secondary colleges have ambitious plans to take post-secondary education to the outback by means of direct satellite telecasts, voice tele-conferencing, computer link-ups and the AREGON audiographic teaching

system which enables teachers to use a light pen to "draw" on a television screen.

5. Community access - 22 Q-NET sites have been selected to ensure that remote communities will have convenient access to the range of educational services being trialled.

Queensland's comprehensive and highly integrated satellite network is not typical of other developments in Australia. On the other side of the continent, the educational needs of the remote communities will be serviced by the satellite in a different manner. The state of Western Australia has a land area of approximately 80% that of India, but a population equivalent to about 0.3% of India's total. Since the majority of Western Australia's 1½ million people are clustered around its capital city of Perth in the south-west corner, it can be appreciated that servicing the educational needs of the state's small and widely scattered remote population is a difficult problem, and a challenge that calls for assistance from the satellite.

The Australian Government is licensing selected companies to operate the Remote Commercial Television Service (RCTS) for each of the 4 regional spot beams. In August 1985, when officially opening the Thirteenth World Conference of the International Council for Distance Education in Melbourne, the Hon. Senator Susan Ryan, Australian Minister for Education, announced two important in-principle decisions that had been reached by the Australian Broadcasting Tribunal.[3] "First, that the licence for the 'Western Footprint' should provide for a 'window' for education broadcasts. Second, that these transmissions should be accessible to education institutions throughout the footprint and not only to those in remote areas. The Tribunal has also said that it expects to come to similar decisions when it considers other transmission areas".

In line with this policy, the RCTS licensee selected for Western Australia, the Golden West Network (GWN), makes its transmitter available to education at no cost for approximately seven hours per week in "down time", usually in the morning. The main user of the facility is the Department of Education, but the state's tertiary institutions, government departments, and community organisations such as the Red Cross Society, are also able to transmit material relevant to education. Much of the Department of Education material broadcast for classroom use, consists of educational films and

videotapes from the Department's central library. However some of the most successful programs in this service (known as Ed-TV), are programs aimed at rural students at Year 11 and 12 levels, who attend their local K-10 district high school. These students study distance education materials under the supervision of local teachers. In a review of the GWN service, Tony Dean of the W.A. Department of Education observed that: [4] "Some of the most successful Ed-TV programs have been aimed at this target audience, with some programs having a live interactive component, whereby students could phone their teacher in the TV studio during the program and have their queries answered."

The Queensland and Western Australia operations are likely to be the two main models for Australian educational television transmission. However there is a third element which is emerging and while its final form and function has yet to be confirmed, it is anticipated that it will have a significant role to play. The scheme (initially known as EMSAT Pty. Ltd.) is an initiative of a Melbourne based company Educational Media Australia Pty. Ltd. (EMA) and has more in common with the Canadian Knowledge Network than a broadcast network. EMSAT's title in fact has recently been changed to the Learning Network. It would be unique in the field because it would neither own a broadcast mast nor would it have a major investment in transmission facilities. Ken Widdowson, the founder and Managing Director of EMA, describes EMSAT's role as [5] "networking with a small 'n', in that it works in the community bringing together educational needs, broadcasting opportunities and suitable programming and production facilities".

The Learning Network originally planned to draw upon video, film and off-campus resources from commercial, state Departments of Education and tertiary colleges and universities to provide [6] ....courses for accreditation to those people unable to attend those institutions because of distance or the inconvenience of times when courses are scheduled". Widdowson has offered government equity to "ensure that the service is accountable to community needs". Recent reports indicate that the accreditation role has been dropped from the Learning Network planning however.

A final initiative worthy of note in a discussion of education and AUSSAT, is the National Working Party on Telecommunications in Tertiary Education. Formed at a conference of delegates from 47 institutes, colleges and universities in May 1984, the working party has one representative from

each state and a member from each of several tertiary education co-ordinating bodies. The initiative resulted from a conference convened by the Royal Melbourne Institute of Technology in order to explore the possibility of a co-ordinated response to an AUSSAT offer of 18 months free transponder capacity and access to major city earth stations for initial trials.

The objective of the [7] National Working Party may be summarised as the stimulating and co-ordinating of effective and extensive satellite telecommunication trials in the tertiary education sector.

The National Working Party has developed a working party in each state and territory. The Queensland and Western Australian parties have been energetically involved in the planning and operations of Q-NET and Ed-TV respectively. An example of other projects emerging from the state working parties may be seen in Victoria, where preliminary planning has been finalised for the "Sunraysia Project". This project will see a remote region in the north-west corner of Victoria linked to a university and several colleges in Melbourne and Geelong by satellite and terrestrial telecommunications using distance learning techniques. The provider institutions will be linked to the Sunraysia College of Technical and Further Education in Mildura. Establishing this link will constitute Phase 1 of the project, and it is envisaged that counterpart colleges at Broken Hill and Riverland across the borders in New South Wales and South Australia respectively, will become linked in parallel Phase 1 developments with provider institutions in their respective capital cities of Sydney and Adelaide. Phase 2 will see the inter-linking of the Sunraysia, Broken Hill and Riverland colleges thus forming not only a network in what is known locally as the Tri-State Area, but an extended network reaching out to Sydney, Adelaide and Melbourne, which will be an embryonic national network. One of the unique features of the project is that it is the first cross-sectoral project of its kind in Australia.

It is likely that the first use to be made of the Sunraysia Project, will be a Victorian Ministry of Labour scheme in which Victoria College will be responsible for the off-the-job training of fifteen young people participating in Communication Traineeships in the Sunraysia area. The significance of the scheme lies in the developing of the concept of a Communication Traineeship, and in the fact that experience gained from the use of the distance and telecommunications mode for the off-the-job training, will be used for

other types of traineeships throughout Australia. The traineeship concept is less than a year old, and is the Australian Government's response to the serious youth unemployment problem in the nation. The Australian Traineeship System is the main element in the Hawke Government's Priority One campaign launched late in 1985 in order to improve the chances of young people obtaining and holding jobs in the workforce. The Government's target is to have created 75,000 traineeships by 1988.

Before leaving the educational use of AUSSAT, it is worth flagging several educational issues which, it is expected, will probably receive more attention in Australia over the next few years. Much of the educational planning for the satellite use, has focused on the more costly medium of television, with voice and data transmission being given considerably less emphasis. In a time of contracting government and education budgets, the question that arises is will there be a temptation to shift the balance from satellite TV to the much cheaper voice and data modes?

Another issue likely to attract more attention is that of AUSSAT and the Australian aboriginal. Questions that are beginning to attract discussion include: "How much will aboriginals benefit from AUSSAT? Should aboriginals be further encouraged to produce their own TV material which reflects their concerns rather than the concerns of the white community?"

In a paper which addresses the topic of satellite television and distance education in Australia, it is important to devote a little time to distance education in its own right. Distance education's importance derives firstly from its rapid spread over the last five years and secondly from its undoubted potential value in all countries, at all levels, and in most, if not all forms of training and education. The reasons for the increased interest in distance education lie not only in its obvious ability to solve the problem of education for learners who are geographically isolated, but also because of the convergence and overlap of a number of related elements, viz:

1. Traditional mainstream on-campus learning.
2. Distance education.
3. Telecommunications and technology.
4. Educational technology and instructional design.
5. A focus on the needs of the individual learner.

In August of 1985, six hundred delegates from fifty nations gathered in Melbourne for the Thirteenth World Conference of the International Council for Distance Education. In a number of ways the conference reflected the growing increase in interest in distance education. For example, there were double the number of delegates at Melbourne compared to the previous I.C.D.E. conference held in Vancouver in 1982. It is interesting to note in Table 1 below, the six nations which provided the majority of the conference papers (75%) and the majority of the delegates (80%).

Country	Papers	Delegates
Australia	48	332
Canada	42	57
New Zealand	26	22
India	16	25
U.K.	14	22
U.S.	12	18
Total	158	476
Overall Total	212	596

Table 1

It is tempting to use this table as an indicator of distance education activity around the world, though clearly the geographical factor (i.e. the fact that the conference was held in Australia), had some influence on the data. Even allowing for the geography issue, the large number of Australian delegates in attendance at the conference, is symptomatic of the significant increase in distance education in the nation. Government statistics (8) show that between 1978 and 1984, the number of distance students enrolled in Australian universities increased by a third, while the number in colleges of advanced education doubled to a figure representing about 15% of all C.A.E. enrolled students.

A far more dramatic increase in enrolled distance students may be seen in China, where the [9] number of external students enrolled in the Radio and Television University in Beijing (RTVU) increased by more than 200% from 113,000 in 1979 to 343,000 in 1983. A report given by a [10] Chinese delegate at the Melbourne conference indicated that there are now 1.2 million students enrolled as distance students in China.

Almost a decade ago, the I.C.D.E. World Conference was held here in New Delhi (1978), the theme of the conference being "Distance Education - Dynamic and Diversified." As [11] John Daniel of Canada, the Immediate

Past President of the I.C.D.E. wrote after the Melbourne conference, "that sub-title was indeed prophetic of the manner in which distance education was to expand and diversify over the next decade".

The Melbourne conference provided a useful insight on the current state of distance education through its themes. The official conference theme was "Flexible designs for learning", but during the conference, another theme emerged in the form of what was referred to as the "convergence theory". In a keynote address on the second day of the conference, Prof. Geoffrey Bolton, a historian from Murdoch University (W.A.), encapsulated the convergence theory by reference to the famous Turner "Frontier Theory" of American History:

"Distance education may be seen as one of those innovations which was forged on the frontier of European expansion overseas; ....the history of distance education is to a considerable extent an example of the process by which ideas and techniques developed on the periphery have gradually been accepted and absorbed into the old heartland of European culture. Beyond that there will be a further chapter unfolding as non-European societies observing this process adapt and modify it to their own needs".

Bolton re-inforced his view by quoting a statement by Prof. Geoffrey Blainey on his book The Tyranny of Distance:

(13) "My book is essentially about people and commodities, and for them the cost of distance has normally been high. But for ideas the freight has been cheap. In the history of this land (Australia), ideas have usually leaped with relative ease across the ocean and even across the inland". Bolton continued: "If, as I believe, Blainey is right, distance education may be seen as one of the great facilitators enabling ideas to leap across long distances. Here again, the experience of new societies has resulted in useful feedback for the rest of the world".

A final issue of significance in relation to the "convergence theory" concerns the relationship between distance education, telecommunications and the growing emphasis on the needs of the individual learner. The latter has been fuelled by the work of Jerome Bruner, Carl Rogers and Malcolm Knowles in the last decade, and has been evident not only in on-campus education and in adult learning - specifically in the field of industrial and management training, but is now exerting considerable influence on distance education.

Until recently, the systems approach of educational technology and instructional design was acknowledged as the appropriate model for distance education. In the last few years however an alternative model has emerged. Supporters of the model dismiss the instructional design approach as being didactic and inflexible. They put forward as a better alternative, a spiral approach which incorporates an interactive process of learning between tutor and student in which the learner's progress evolves and draws upon past experience and focuses on the learner's own learning goals.

It may be argued that the approaches are not alternatives, but complementary. It is difficult to see how any course can proceed without certain key elements of the instructional design approach - e.g. course goals, content, and an attempt to evaluate the effectiveness of the course. By the same token, the spiral or "open learning" approach clearly has considerable merit in certain applications, particularly at a tertiary and adult learning level.

Open learning is relevant when one takes into account the other major convergent force - viz. telecommunications. As learning resources become more accessible to distance learners by means of satellite television and voice broadcasts, and by videotex and audiographic technologies, the role of the distance educator will increasingly change from that of tutor and teacher to facilitator. Needless to say, this type of change will also begin to apply to conventional on-campus learners.

This is an appropriate point at which to move into the third and final phase of this paper - viz. "Possible implications for Asia". The first point to acknowledge is that the technological open learning scenario described above, will, for some time to come have little relevance in many parts of Asia, and indeed in many parts of most developing countries. One can argue that there will always be a need in certain content and geographical areas and at certain educational levels (particularly primary school) for the more didactic and linear approach of the instructional design model. But the open learning model has important implications for virtually all distance educators, even if only because it does emphasise a focusing of attention on the needs of the individual learner.

One can draw some tentative conclusions about distance education in India by studying aspects of the Indian involvement in the World I.C.D.E.

conference last year. Firstly, the level of Indian participation and paper presentation as shown in Table 1 above, is indicative of considerable interest and activity in the field in India.

Another trend emerges when one studies the abstracts of the Indian I.C.D.E. papers. Unfortunately, in many of the papers, there is pessimism about distance education in India. This is evident even in some of the paper titles, e.g. "Problems of distance learners in India: methods and strategies in overcoming them", and "Development of distance education in India: the principal impediments".

It is interesting that there was evidence of pessimism in papers at the 1982 Vancouver World I.C.D.E. Conference. The editors of the Conference proceedings noted that: [14] ".... with respect to distance education the difference between potential and reality is one of the striking themes .... contributors who deal with the role of distance education and national development do tend to stress the gulf between what could be done and what is actually being done". At the Melbourne I.C.D.E. Conference, Geoff Arger presented a paper entitled "Promise and reality: A critical analysis of the literature available in Australia on distance education in the Third World". The gap between potential and reality as noted by the editors of the 1982 Conference report, was the stimulus for Arger's Australian literature search. His conclusion is that it can be argued that [15] ".... until the (national) development paradigm, within which distance education operates, becomes more appropriate to the Third World's needs, then the difference between the potential and the reality of distance education's contribution to national development in the Third World will remain the 'striking theme' noted" (in Vancouver in 1982).

There are a number of points that may be made on Arger's thesis:

1. One of his most telling criticisms, an analysis of distance education in a number of Third World countries, was conducted in 1966. There has clearly been significant activity in Third World distance education in the twenty years since then, particularly in the past decade.
2. Many of the problems identified in the literature search are equally true of distance education in developed countries - e.g. high drop-out rates.
3. There is an implicit inference in the thesis that conventional on-campus education would be more appropriate for Third World countries. This however begs the question about the universal availability of conventional on-campus education as a viable alternative.

4. There is an assumption that distance education is a single identifiable homegeneous process. This has not been the experience at Victoria College for example, where a Graduate Diploma in Educational Technology course which had previously been offered for almost a decade in an on-campus only mode, became available also in the distance mode in 1981. Since that time, the teaching staff have been involved in an on-going process of developing, monitoring and refining the use of a wide variety of approaches, techniques and materials, including the use of regional centres. Questions such as whether the distance mode was more or less cost-effective than the on-campus mode are much less significant than for example, "Should people at a distance from Victoria College be given access to this particular course in a viable distance mode?"

Taking all things into account, this writer believes a positive attitude is justified towards the potential value of distance learning in Asia, a view that is corroborated by the existence of many successful examples in Asia of the effectiveness and viability of distance education.

One can conclude therefore with the following observations and recommendations:

1. Distance education has considerable and indeed increasing potential in the Asian context.
2. High priority should be given to the training of distance educators, to the establishing of multi-purpose distance education regional centres, and to the trialling of as wide a variety of distance education techniques as possible, in order to identify approaches and materials appropriate to different distance learning requirements.
3. Economies of scale can be achieved in distance education in a way not normally available in the on-campus mode.
4. Distance education should be seen not as a universally defined homogonous process, but rather as simply a means of offering education in areas not able to access on-campus learning. Consequently, distance education should be approached on a problem-solving basis, where the focus is on the identifying of the most appropriate and achievable means of enabling the target audience to access learning. One of the tools for solving some of the distance education challenges, undoubtedly lies in the main subject of this paper - the communications satellite.

A. C. Millar

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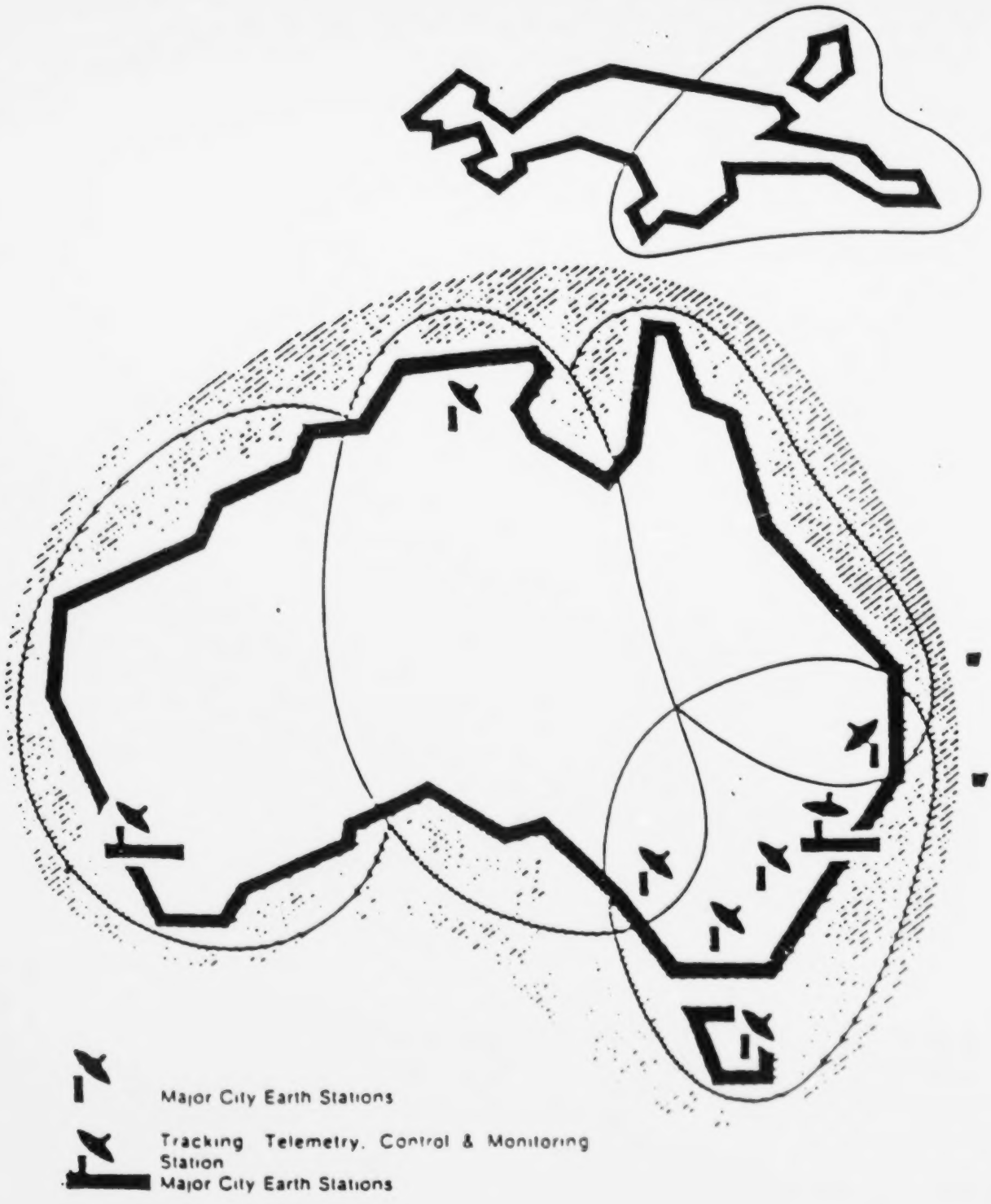
AUSSAT : SATELLITE COVERAGE



A national beam and four spot beams cover: Western Australia; Northern Territory plus South Australia; Queensland; New South Wales, Victoria and Tasmania.

Source: AUSSAT (1984)

Country	Papers	Delegates
Australia	48	332
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